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NOTES ON GEOGRAPHIC DISTRIBUTION

Reptilia, Squamata, Iguanidae, *Anolis heterodermus* Duméril, 1851: Distribution extension, first record for Ecuador and notes on color variation

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ABSTRACT: We report the first record of *A. heterodermus* for Ecuador based on four specimens from Chilmá Bajo, province of Carchi, ca. 120 km NE from the nearest record (departamento Putumayo, municipio de Santiago, Colombia) reported in the literature. Two additional records for Ecuador are listed in the Herpnet database, from specimens deposited at the Carnegie Museum of Natural History and collected 18 km SE from Maldonado (ca. 8 km NW from Chilmá Bajo). We also present information about color variation in the recently collected specimens.

Phenacosaur anoles include 11 species known from high elevations in the Andes of Peru, Ecuador, Colombia, and the tepuis of Venezuela (Poe and Yañez-Miranda 2007). This group of anoles has been traditionally placed in the genus *Phenacosaurus* due to unusual morphological features, such as a serrate middorsal crest, casqued skull, bladelike ilial shaft, and prehensile tail (Lazell 1969). Based on phylogenetic analyses of morphological characters Poe (1998; 2004) synonymized *Phenacosaurus* with *Anolis*, which had been suggested by other authors previously (*e.g.*, Etheridge and de Queiroz 1988). Nesting of *Phenacosaurus* within *Anolis* also has been supported by subsequent analyses of molecular data (*e.g.* Jackman *et al.* 1999; Glor *et al.* 2001).

One of the most common high-altitude lizard species in Colombia is *Anolis heterodermus* Duméril, 1851, which has been subject to ecological (Miyata 1983), behavioral (Kästle 1965; Jenssen 1975; Lombo 1989), and reproductive (Ramírez-Pinilla *et al.* 1989; Ramírez-Perilla *et al.* 1991) studies. Herein we report the first record of *A. heterodermus* (Figure 1) for Ecuador based on four specimens (QCAZ 8721, 8754–56) collected in Chilmá Bajo (0°51'53,82" N, 78°2'59,23" W, 2,071 m), province of Carchi, between 21–26 February 2009. This locality lies approximately 120 km NE from the nearest record (ICN 10595–6, departamento Putumayo, municipio de Santiago, Colombia) of *A. heterodermus* reported in the literature (Figure 2; Mueses-Cisneros 2006). Our specimens are

FIGURE 1. *Anolis heterodermus* from Ecuador. Upper left: male, QCAZ 8754 (SVL = 75.73), upper right: female, QCAZ 8721 (SVL = 73.12), lower left: female, QCAZ 8755 (SVL = 75.87), lower right: female, QCAZ 8756 (SVL = 75.78).

morphologically similar to Colombian specimens of *A. heterodermus* as reported by Lazell (1969; Table 1). The specimens were collected under collection permit 008-09 IC-FAU-DNB/MA and were deposited at Museo de Zoología (QCAZ), Pontificia Universidad Católica del Ecuador.

Table 1. Scale counts, morphology, and measurements of specimens of *Anolis heterodermus* from Colombia and Ecuador. [1] Distance from center of eye to tip of snout (Lazell 1969).

	Colombia (Lazell 1969; n = 154)	Ecuador male (n = 1)	Ecuador female (n = 3)
Number of dorsals in standard distance [1]	8–19	19–21	17–20
Subdigitals on phalanges II and III of Toe IV	18–24	19–20	18–20
Dorsal crest type (Lazell 1969)	1–10	3–5	3–5
Male max. SVL (mm)	83	76	—
Female max. SVL (mm)	86	—	76

Specimens were collected sleeping heads up at night, on hanging vines at 2.5–5 m above ground (QCAZ 8754–55, 8721), or during the day (10:00 h) basking on a branch of 5 cm of diameter, 2 m above ground (QCAZ 8756). All specimens were collected on the border between pasture and secondary forest densely populated with vines. Some specimens changed their background color between dark brown and light green. Male QCAZ 8754 was uniformly dark brown when undisturbed in the collecting bag. When disturbed, it switched colors in less than five minutes to the following pattern (Figure 1): background color light green of various tones, with head scales laterally and some flank scales being the lightest; yellow longitudinal stripe extending from subocular region to shoulder and contacting tympanum dorsally; brown mark behind eye; flanks with scattered yellow scales; tail with seven dark brown transverse bands alternating with light blue (proximally) and light brown (distally) bands; gular region yellowish cream; gular sac lemon green; venter cream. When found, female QCAZ 8755 (Figure 1) was light green contrasting with the dark brown vines around it. Next day the same specimen was dark brown in the collecting bag, and a few hours later, when disturbed, it returned to its light green background color. Female QCAZ 8756 (Figure 1) was white with brown marks when collected and never changed colors.

Two additional records of *A. heterodermus* for Ecuador from the Carnegie Museum of Natural History are listed in the Herpnet database (www.herpnet.org). Although we did not examine those specimens (CM 94608–9), they were collected approximately 8 km NW (18 km SE Maldonado, province of Carchi, 2,480 m) from the locality reported in this paper. Presence of *A. heterodermus* in Ecuador increases to 30 the number of species of *Anolis* in this country (Torres-Carvajal 2009), of which three are phenacosaur anoles – *A. heterodermus*, *A. orcesi*, *A. vanzolinii*.

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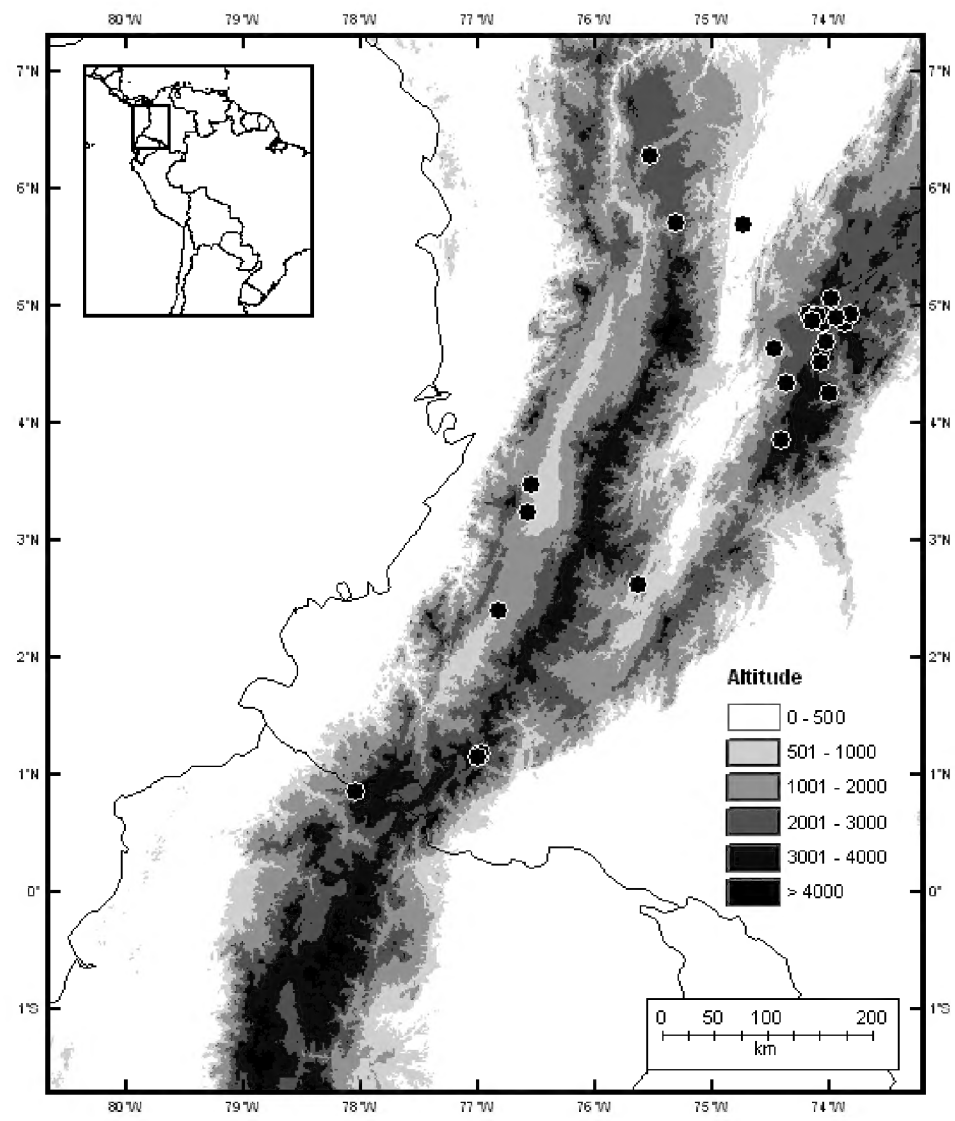

Figure 2. Distribution of *Anolis heterodermus* in South America.

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